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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/931,415	08/17/2001	Debabrata Ghosh	45283.2	3885
22828	7590	12/16/2003	EXAMINER	
EDWARD YOO C/O BENNETT JONES			VO, HAI	
1000 ATCO CENTRE			ART UNIT	
10035 - 105 STREET			PAPER NUMBER	
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CANADA			DATE MAILED: 12/16/2003	

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

## Application No.

09/931,415

## Applicant(s)

GHOSH ET AL.

## Examiner

Hai Vo

## Art Unit

1771

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 14 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 27-36 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 27-33 and 36 is/are rejected.
- 7) ☒ Claim(s) 34 and 35 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 27-36 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Applicants argue that since the seals of the present invention function only as a physical barrier, it is apparent that no catalytic element is contemplated as part of the sealing function. The mere absence of a positive recitation is not basis for an exclusion. The limitations "the seal does not comprise a catalytic element" are not found support in Applicants' specification. Any claim containing a negative limitation which does not have basis in the original disclosure should be rejected under 35 U.S.C. 112, first paragraph as failing to comply with the written description requirement. See *Ex parte Grasselli*, 231 USPQ 393 (Bd. App. 1983), aff'd mem., 738 F.2d 453 (Fed. Cir. 1984).

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 27-32 and 36 are rejected under 35 U.S.C. 102(b) as anticipated by Sago (US 4,650,621). Sago teaches a heat exchange element comprising a matrix of ceramic fibers wherein the interstices among the ceramic fibers are uniformly filled with a ceramic particles (abstract, column 6, lines 5-10). The ceramic particles are interspersed between the ceramic fibers (column 3, lines 57-60). The fibers and particles are unsintered (column 6, lines 11-20). There is no suggestion or disclosure of the precise orientation of the ceramic fibers in the matrix, therefore the ceramic fibers are randomly oriented. The ceramic fibers are silica fibers, alumina fibers, zirconia fibers (column 2, lines 44-45). The ceramic particles are silica particles or alumina powders (column 5, lines 43-50, column 6, line 8). The heat exchange element is used after subjecting it to further processing such as re-adhesion in order to obtain the shape, dimension and construction necessary for suitable heat exchange element (column 6, lines 22-25). Likewise, it is clearly apparent that the heat exchange element is subjected to compression for re-adhesion. The heat exchange is thus compressible. Sago is using a corrugating machine to produce any shape desirable for the heat exchange element (column 5, lines 25-35). Likewise, it is apparent that the heat exchange element is flexible too! The fibers and particles are not sintered (column 6, lines 11-20). Nothing in Sago discloses or suggests that the heat exchange element is hermetically gas tight. It is the examiner's position that Sago anticipates the claimed subject matter.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sago (US 4,650,621) as evidenced by Sanocki et al (US 5,955,177). Sago discloses the solid particles having a particle size less than 5.5 microns to increase hydroscopic capability and durability (column 3, line 61 to column 4, lines 1-14). However, Sago does not specifically disclose the functional lower limit for particle size, i.e., less than 1 micron. Therefore, it is necessary and thus obvious for the skilled artisan to look to the prior art for a suitable lower limit to particle size for the solid particles. Sanoki teaches a flexible mat for use in heat exchanger comprising a matrix of ceramic fibers and a plurality of solid particles interspersed between the ceramic fibers (abstract, column 10, line 24). Sanoki is relied on as evidence that teaches the solid particles having a particle size between 1 nm to 1 micron (column 9, line 1), meeting the range set out in the claims. The teaching of Sanoki would give the skilled artisans the tools necessary to conclude that it is desirable to use the solid particles with a particle size less than 1micron in the heat exchanger element. In the absence of unexpected results, it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ the solid particles having a substantial particle size within the range instantly claimed, motivated by desire to increase hydroscopic capability and durability.

***Response to Arguments***

7. Applicant's arguments with respect to claims 27-33, and 36 have been considered but are moot in view of the new ground(s) of rejection.
8. The art rejections over Sanocki and Numamoto have been overcome by the present amendment and response (see pages 3 and 4 of the amendment filed on 08/28/2003).

***Allowable Subject Matter***

9. Claims 34 and 35 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The inclusion of the solid particles with the particle size less than about 1 micron comprising a first portion and a second portion wherein the average particle size of the first portion is larger than the average particle size of the second portion renders the claims unobvious over the prior art. Graphs A and B of Sago shown in figure 3 illustrate that there are no two groups of the particles with size less than 1 micron.

***Conclusion***

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai Vo whose telephone number is (703) 605-4426. The examiner can normally be reached on M,T,Th, F, 8:30-6:00 and on alternating Wednesdays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on (703) 308-2414. The fax

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phone number for the organization where this application or proceeding is assigned is (703) 872-9310.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

HV

Hai Vb

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